REMARKS

This submission in is response to the Official Action dated March 19, 2003. Claims 74-81 have been amended. Claim 73 has been canceled, without prejudice or disclaimer. Claims 80 and 81 have been rejoined and amended. Claims 74-81 are currently pending and at issue.

The title of the specification has been changed to "Antibody Specific for Presenilin 1 and Method of Use Thereof."

Figures 3-5 have been cancelled, and the remaining figures have been renumbered. The substitute specification, filed on May 15, 2002, has been amended accordingly to remove the corresponding figure legends and citations to the cancelled figures.

Further, a typographical error on page 6, line 18 of the substitute specification lists "SEQ ID NO: 2" as a mouse sequence when the specification should in fact read "SEQ ID NO: 4." This paragraph has therefore been amended to correct the typographical error. Support for this amendment is found in the substitute specification at page 47, lines 17-21, which lists SEQ ID NO: 4 as a murine sequence, and in Table 3 (p. 97 of the substitute specification).

Claim 74 has been amended to recite an antibody "specific for" a mammalian presenilin protein. Support for the amendment of claim 74 is found in the substitute specification at page 7, lines 1-13, for specificity; Example 10 (pp. 91-92)

describing antibodies specific for selected peptides; page 6, lines 14-20, for SEQ ID NOs: 2, 4, 134, and 136; and page 7, lines 20-22, for SEQ ID NO: 138.

Claims 75 and 76 have been amended to depend from claim 74 and to recite an antibody "specific for" a mammalian presenilin protein having the amino acid sequence of SEQ ID NOs: 2, 4, 134, 136, or 138, i.e., human or mouse PS1. Support for the amendment of claims 75 and 76 is found in the substitute specification at page 7, lines 4-6, and at page 91, line 28, to page 92, line 6.

Claims 77, 78, 79, and 80 have been amended to depend from claim 74.

Claim 81 has been amended to set forth specific amino acid residues to which the antibody binds. Support for claim 81 is found in the substitute specification at page 91, line 28, to page 92, line 6.

No new matter has been added by way of this amendment.

Specification

The title of the specification was objected to as not being descriptive. In response, the title has been changed to "Antibody Specific for Presenilin 1 and Method of Use Thereof."

Drawing Objections

The drawings were objected to under 37 C.F.R. 1.83(a) as failing to show/label panels A-C as described in the specification. Specifically, Figure 7 failed to show panels A-C.

With this amendment, Figures 3-5 and 7 have been cancelled, without prejudice. Figure 6 has been renumbered Figure 3. Figure 8 has been renumbered Figure 4. Formal drawings containing replacement copies of Figure 3 and Figure 4 are submitted herewith. The canceled drawings were not necessary for understanding the invention.

Claim Objections

The Examiner has objected to claims 74-76 as allegedly reciting an improper Markush Group. Specifically, the Examiner contends that the so-called Markush Group of SEQ ID NOs: 2, 4, 134, 136, and 138 is improper because of an alleged lack of shared structural features and unity of invention.

Applicants respectfully disagree with the Examiner's contention. Presenilins are a novel group of Alzheimer's Related Membrane Proteins (ARMPs) discovered by the Applicants, and the amino acid sequences share significant structural and functional features.

SEQ ID NOs: 2 and 134 are human ARMP amino acid sequences, differing only in one amino acid (residue 205) whereas SEQ ID NOs: 4 and 136 are mouse ARMP amino acid sequences differing in, at the most, 6 amino acid residues. As described in the substitute specification on page 5, lines 19-21, human amino acid sequences share greater than 95% homology with the mouse sequence. Further, Table 3 depicts a detailed comparison between SEQ ID NOs: 2 and 4, showing a 99.57% sequence similarity. The claimed human sequences (SEQ ID NOs: 2 and 134) thus share a significant structural homology with the claimed mouse sequences (SEQ ID NOs: 4 and136).

In addition, as outlined in the substitute specification on page 39, lines 23-25, ARMP and E5-1 proteins share an overall 63% sequence identity. E5-1 proteins and ARMP also share a similar structural organization, as described by the substitute specification on page 39, lines 28-30, and on page 40, line 28. SEQ ID NO: 138 is a human purified E5-1 amino acid sequence, and thus shares structural homology with SEQ ID NOs: 2, 4, 134, and 136.

Additional support for the shared structural and functional features of SEQ ID NOs: 2, 4, 134, 136, and 138 is found throughout the specification. For example, at page 66, line 25, to page 67, line 2, the substitute specification describes that E5-1 proteins are homologues for ARMP and can be used as a replacement for a defective ARMP gene. Accordingly, there is a sufficient amount of shared

structural and functional features among the claimed SEQ ID NOs. Therefore, it is respectfully requested that this objection be withdrawn.

Rejections Under 35 U.S.C. §112, First Paragraph

Claims 73-79 have been rejected under 35 U.S.C. §112, first paragraph, as containing matter not supported by the specification. According to the Examiner, the claim language reciting, "63% amino acid sequence identity" is unsupported by the specification.

With this amendment, claim 73 has been canceled without prejudice or disclaimer. The cited language only appeared in claim 73. Thus, the rejection of claims 73-79 has been rendered moot. It is respectfully requested that this rejection of claims 73-79 be withdrawn.

Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 73-79 have been rejected under 35 U.S.C. §112, second paragraph, as being allegedly indefinite with respect to the phrases "specifically binds" and "specifically recognizes."

With this amendment, claim 73 has been canceled, and claim 74 recites that the antibody is "specific for" a contiguous 6-amino acid residue portion of the

claimed sequences. Antibody specificity is a well-established concept in the art, and is described in the context of the present invention on, *e.g.*, page 7, lines 1-13.

It is respectfully submitted that this rejection has been thereby been overcome, and reconsideration and withdrawal of this rejection is earnestly requested.

Rejoinder of Claims

It is earnestly requested that claims 80 and 81, which are non-elected claims, should be rejoined.

As amended, claim 80 is directed to a method for detecting the presence of a mammalian presenilin protein using an antibody as defined in claim 74. As amended, claim 81 is directed to the use in the method of claim 80 of antibodies specific for particular amino acid residues of SEQ ID NO: 2 or SEQ ID NO: 134. Each of claims 80 and 81 therefore defines a biotechnological process using an also claimed novel composition, i.e., the antibody specific for mammalian Presenilin protein as described in claim 74. Accordingly, claims 80 and 81 are covered by the special case set forth in 35 U.S.C. §103(b)(3)(c) regarding biotechnology inventions, i.e., that claims to a biotechnological process using an also claimed novel composition should be in one application.

Furthermore, according to the *Manual of Patent Examining Procedure*, §821.04,

> process claims that depend from or otherwise include all the limitations of the product can be entered as a matter of right if the amendment is presented prior to final rejection or allowance.

It is noted that the process of detecting a mammalian Presenilin protein in a biological sample as recited in claims 80 and 81 includes all the limitations of the antibody product defined in claim 74, as the biological sample is contacted with an antibody as defined in claim 74.

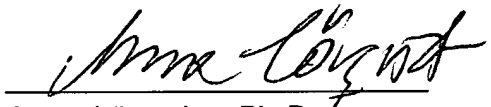
It follows that claims 80 and 81 fulfill the criteria for rejoinder of both 35 U.S.C. §103(b) and *MPEP* §821.04, as they are an example of biotechnological process claims using an also-claimed novel product and include the limitations of that also-claimed product. The restriction requirement thereby contradicts the statues, rules, and case law. See, *e.g.*, 35 U.S.C. §103(b); 37 C.F.R. §1.144; and *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127 (Fed. Cir. 1995). See also MPEP §§ 706.02(n) and 2116.01. Claims 80 and 81 are thus properly examined with the pending claims, and rejoinder is requested.

Conclusion

Therefore, in view of the above amendments and remarks, it is earnestly requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,



Anna Lövqvist, Ph.D.
Limited Recognition Under
37 C.F.R. §10.9(b) (see enclosure)
Representative for Applicant(s)

DARBY & DARBY, P.C.
Post Office Box 5257
New York, NY 10150-5257
Phone (212) 527-7700